

REMARKS

The present invention is directed towards a video data transmission and reception system in which a user can select between two different video sources with relative ease at a reduced hardware cost. (Pg. 1, lns 2-4, Pg. 3, ln.15 – Pg. 6, ln. 8). The present invention includes an encoder 14 comprising a first encoding unit (second circuit) including a DCT unit 143 and a quantization unit 144 which generates interframe data such as B and P frames and a DCT unit 141 and second encoding unit (first circuit) quantization unit 142 which generates intraframe data such as "I" frames. The interframe data and the "I" frames are combined to form broadcast video data, and the "I" frames are also used as substitute "I" frame. (Pg. 41, lns. 9 – 23; Fig. 4)

Advantageously the first encoding unit (second circuit) DCT unit 143 and the quantization unit 144 only generate interframe data so that "I" frames are not redundantly duplicated. This allows a conventional encoder to be used and also for a reduced amount of hardware to be used. Furthermore, only the first encoding unit generating interframe data utilizes motion compensation. Thus, encoder 14 includes only a single motion compensation unit and only a single predictive memory unit. This reduces costs of the system and utilizes a more efficient processing of the broadcast video data while allowing the user to easily switch between two different broadcast systems.

The Office Action rejected Claims 1, 11, 13, 14, 16, and 18 under 35 U.S.C. § 103 as being obvious over *Satoda* in view of *Muller* (U.S. 6,031,574).

Satoda is directed towards a contents distribution system which selects based on a request from a user terminal, an appropriate frame for transmission from among the generated frames.
(Abstract)

Satoda does not teach or suggest “first encoding unit consisting of a first DCT unit and a first quantization unit” and “a second encoding unit consisting of a second DCT unit and a second quantization unit.” *Satoda* discloses the use of intraframe coding unit 22 and interframe coding unit 23. (¶¶ 0122, 0131; FIG.5) However, *Satoda* does not disclose any details regarding the structure of intraframe coding unit 22 or interframe coding unit 23. Thus, there is no disclosure within *Satoda* that intraframe coding unit 22 or interframe coding unit 23 should each include a DCT unit and a first quantization unit. As seen in FIG. 5, there is no disclosure of the structure components of intraframe coding unit 22 or interframe coding unit 23.

Muller is directed towards an apparatus for the compression of video data of a video film using an interframe method K1 and an intraframe method K2. During transmission of the video film, only the interframe coded video data are transmitted and in response to a request for fast forward or fast backward mode only, the video data of the entry point are transmitted intraframe-coded and all subsequent video pictures are transmitted interframe-coded. (Abstract)

Muller also does not disclose “first encoding unit consisting of a first DCT unit and a first quantization unit” and “a second encoding unit consisting of a second DCT unit and a second quantization unit.” *Muller* also discloses the use of interframe encoder K1 and intraframe encoder K2. However, *Muller* does not disclose the structural components of interframe encoder K1 and intraframe encoder K2. More specifically, *Muller* does not disclose that each of the interframe encoder K1 and intraframe encoder K2 should each include a DCT unit and a quantization unit.

In contrast, in the present invention, a first encoding unit (second circuit) includes a DCT unit 143 and a quantization unit 144 which applies interframe encoding. (Pg. 22, ln. 22 – Pg. 23 – ln. 3) Furthermore, a second encoding unit (first circuit) includes a DCT unit 141 and

quantization unit 142 to intraframe encode and output the resulting data as substitute I frame data. (Pg. 22, ln. 19 – 22; FIG. 5)

Satoda also does not teach or suggest “wherein the first encoding unit and the second encoding unit are included in a same encoder which has one motion compensation unit and one predictive memory unit.” As seen in FIG. 5, intraframe coding unit 22 and interframe coding unit 23 are part of contents input unit 20a. However, there is no discussion within *Satoda* as to whether input unit 20a includes a motion compensation unit and a predictive memory unit.

Muller also fails to disclose “wherein the first encoding unit and the second encoding unit are included in a same encoder which has only one motion compensation unit and only one predictive memory unit.” Likewise, *Muller* discloses the use of an encoder K1 and encoder K2 within device V. However, as seen in FIG. 2, there is no indication that device V includes motion compensation units and predictive memory units.

In contrast, in the present invention, encoder 14 includes a first encoding unit (second circuit), a second encoding unit (first circuit), and only one motion compensation unit and only one predictive memory unit as seen in FIG. 4. First encoding unit (second circuit) includes DCT unit 143 and quantization unit 144 to produce interframe data using motion compensation.

Furthermore any hypothetical combination of *Satoda* using the disclosures in *Muller* would render *Satoda* inoperable.

As noted in MPEP 2143.01

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

In *Muller*, the intraframe-coded data is only transmitted during a fast-forwards or a fast-backwards request. (Abstract) The Office Action, however, claims on Page 12 that *Satoda* discloses that any switching of the channels results in a transmission of an intraframe "I" frame in order to allow a quicker display of a proper picture. Thus, to incorporate the features of *Muller* would render *Satoda* inoperable since the intraframe "I" frame would only be transmitted during a fast-forwards or a fast-backwards request. If *Satoda* were to be modified to include such features, then it would not transmit an "I" frame when a user switches channels since it would not be a fast-forwards or a fast-backwards request. The hypothetical combination of *Satoda* and *Muller* which only transmits an "I" frame during a fast-forwards and fast-backwards request would not disclose the feature recited in Claim 1 of the present application:

a transmission unit transmitting the video data and the substitute I frame data to the plurality of reception terminals, and when the transmission unit is to resume transmission of the video data to one of the reception terminals after temporarily interrupting transmission of the video data to the reception terminal, the transmission unit transmits at least one frame's worth of the substitute I frame data to the reception terminal before resuming transmission of the video data

All arguments for patentability with respect to Claim 1 are repeated and incorporated herein for Claims 2, 11, 13, 14, and 16.

With respect to Claim 14, *Satoda* fails to recite "only one motion compensation unit connected to the first DCT unit and the second DCT unit; and only one predictive memory unit connected to the motion compensation unit." In *Satoda*, even if input unit 20a includes motion compensation units and predictive memory units, and there is no indication that it does, there is no indication within *Satoda* that it should include only one motion compensation unit and only one predictive memory unit for the input unit 20a instead of one motion compensation unit and

one predictive memory unit for each of the intraframe coding unit 22 and interframe coding unit 23 for a total of two motion compensation units and two predictive memory units.

Muller also fails to disclose “only one motion compensation unit connected to the first DCT unit and the second DCT unit; and only one predictive memory unit connected to the motion compensation unit.” Even if device V included a motion compensation unit and a predictive memory unit, and there is no indication within *Muller* that device V should have only one motion compensation unit and only one predictive memory unit for all of device V instead of at least one motion compensation unit and at least one predictive memory unit for each of encoder K1 and encoder K2 for a total of two motion compensation units and two predictive memory units for device V.

In contrast, in the present invention, encoder 14 includes a first encoding unit (second circuit), a second encoding unit (first circuit), and only one motion compensation unit and only one predictive memory unit as seen in FIG. 4. As seen in FIG. 4, the second encoding unit (first circuit) produces the intraframe data without motion compensation and thus does not need to utilize the motion compensation unit. Thus only a single motion compensation unit and only a single predictive memory unit are utilized in encoder 14. Advantageously this reduces an amount of hardware utilized and reduce a production cost of the system as only a single encoder 14 it utilized and furthermore encoder 14 also has reduced hardware. In addition, processing time is reduced since only the second encoding unit performs intraframe encoding, eliminating redundant intraframe encoding.

The Office Action rejected Claims 10, 12, 15, and 17 under 35 U.S.C. § 102 as being anticipated by *Satoda* (U.S. Pat. Pub. No. 2002/0147980).

All arguments for patentability with respect to Claim 1 are repeated and incorporated herein for Claims 10 and 17. All arguments for patentability with respect to Claims 1 and 14 are repeated and incorporated herein for Claim 15.

As noted in *Dayco Prods., Inc. v. Total Containment, Inc.*, F.3d 1358, 1368 (Fed. Cir. 2003),

[T]he dispositive question regarding anticipation is whether one skilled in the art would reasonably understand or infer from the prior art reference's teaching that every claim [limitation] was disclosed in that single reference.

The Office Action also rejected Claims 2-9 and 19 under 35 U.S.C. § 103 as being obvious over *Kunkel et al.* (U.S. 7,100,183) in view of *Satoda* and *Muller*.

All arguments for patentability with respect to Claim 1 are repeated and incorporated herein for Claim 2.

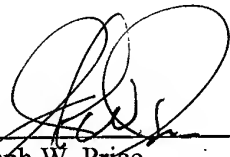
Dependent Claims 3-6 and 18-20 depend from Claims 1 and 2 and are thus allowable, too.

It is believed that the case is now in condition for allowance and an early notification of the same is requested.

If the Examiner believes that a telephone interview will assist in the prosecution of this case, the undersigned attorney can be reached at the listed telephone number.

Very truly yours,

SNELL & WILMER L.L.P.



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